



# Job Loss Analysis

Control No: 2000115\_\_\_\_\_ Status: Closed\_\_\_\_\_ Original Date: 05 February 2010

Last Date Closed: 8/1/10\_\_\_\_\_

Organization: GMFG

JLA Type: \_\_\_Global Mfg Shared\_\_\_\_\_

Work Type: Technical (Process Engineering)\_\_\_\_\_

Work Activity: Prepare to Execute Turnaround

## Personal Protective Equipment (PPE)

<input type="checkbox"/> Goggles	<input type="checkbox"/> Hearing Protection	<input type="checkbox"/> Warning Device	<input type="checkbox"/> Gloves( <u>Nitrile, rubber, leather</u> )
<input type="checkbox"/> Face Shields	<input type="checkbox"/> Hard Hat	<input type="checkbox"/> Tagout/Lockout kit	<input type="checkbox"/> Other _____
<input type="checkbox"/> Safety Glasses	<input type="checkbox"/> Safety Shoes	<input type="checkbox"/> Hi Viz Jacket	<input type="checkbox"/> Other _____
<input type="checkbox"/> Safety Back Belt	<input type="checkbox"/> Safety Cones	<input type="checkbox"/> Welding Hood	<input type="checkbox"/> Other _____

## Reviewers

Reviewer Name	Position	Date Approved
Allan Zieber	Salt Lake Refinery Process Lead (5/11/10).	5/11/10
Michelle Johansen	Richmond Process Engineering Manager/PED Global JLA Development Leader	8/2/10
Aaron Sims	Richmond Lead Engineer	7/30/10


## Development Team

Development Team Member Name	Primary Contact	Position
K Kabler	X 1288	Process Engineer
C Odumah	X 1114	Process Engineer



## Job Steps

No.	Job Steps	Potential Hazard	Critical Actions
1.	Ensure your respirator/SCBA (self contained breathing apparatus) fit test is up-to-date and ensure your respirator fit card is with you at all times during the course of the shutdown.	<ol style="list-style-type: none"> <li>1. Failure to do respirator/SCBA fit test prior to the shutdown will result in a shutdown delay. Majority of vessel/column/furnace inspections require a respirator for entry.</li> <li>2. Not having your respirator/SCBA fit card present will result in a turnaround delay as respirators will not be handed out unless the individual has their respirator fit card present.</li> <li>3. Impaired vision for spectacle wearers using SCBA.</li> </ol>	<ol style="list-style-type: none"> <li>1. Schedule fit test prior to the Turnaround.</li> <li>2. Have your respirator fit card present at all times. Laminate your card if possible to keep it in readable.</li> <li>3a. Determine if vision corrected visors are required (order well in advance)</li> <li>3b. Ensure spectacles fit within the mask and vision is clear.</li> </ol>
2.	Obtain turnaround related training	<ol style="list-style-type: none"> <li>1. Not obtaining turnaround related training will result in a turnaround delay, general confusion, injuries and/or loss of life.</li> </ol>	<ol style="list-style-type: none"> <li>1. Talk to supervisor about scheduling the necessary training and ensure appropriate turnaround training is completed. Examples may include: <ul style="list-style-type: none"> <li>• Proper use of a harness. If applicable, obtain a harness from the tool room.</li> <li>• Refractory Ceramic Fiber Training</li> <li>• Appropriate IMPACT Training.</li> <li>• Review of shutdown, clean-up, and start –up procedures</li> <li>• Review of turnaround scope</li> <li>• If providing TA support to another facility, determine what Site Specific Training is required</li> </ul> </li> </ol>
3.	Ensure you have an adequate supply of turnaround gear:	<ol style="list-style-type: none"> <li>1. Inadequate turnaround gear will make it very difficult to carry out equipment inspections and will result in turnaround delay and possibly injuries.</li> </ol>	<ol style="list-style-type: none"> <li>1. Obtain necessary equipment from the Tool Room, the PED lead, or prepare a turnaround bag or backpack with items following: <ol style="list-style-type: none"> <li>I. Radio (understand use)</li> <li>II. Several pairs of Nomex</li> <li>III. Flashlight and backup light</li> <li>IV. Smaller rescue flashlight or head lamp</li> <li>V. Rain coat (if needed).</li> <li>VI. Inspection mirror.</li> <li>VII. Magnet</li> <li>VIII. Level, ruler</li> <li>IX. Spoggles/Goggles and extra safety glasses</li> <li>X. Kneepads for bubblecaps</li> <li>XI. Tape measure.</li> <li>XII. Paint pen (low Cl-)</li> <li>XIII. Glove clips.</li> </ol> </li> </ol>

No.	Job Steps	Potential Hazard	Critical Actions
			<p>XIV. Wire toothbrush.  XV. Digital camera.  XVI. Backpack/Belt Mount Pouch or material while climbing.  XVII. Tyvek  XVIII. Laser Level  XIX. Hand Held Boroscope  XX. Calibrated H2S Monitor if not standard to wear  XXI. Disposal masks  XXII. Batteries &amp; chargers  XXIII. Gloves  XXIV. Chemical suites  XXV. Draeger tubes &amp; test pumps  XXVI. Small Note pads  XXVII. Welding rod (for confirming nozzles clear)</p> <ul style="list-style-type: none"> <li>Note – ensure proper paint pens are used. See attached pdf around proper type of paint pens.</li> </ul> <p></p> <p>FCC%20-%20Mat  erial%20Markers6...</p>
4.	Refresh personal knowledge of the refinery instructions related to turnarounds.	1. Lack of knowledge on Refinery Instructions related to turnarounds can result in a high risk of injury or fatality, a safety/environmental incident(s), failure to identify and stop unsafe work(and working conditions), a process upset during start-up, and a delay to the turnaround schedule.	<p>1. Read applicable Refinery Instructions, and refer to the Health, Environmental, and Safety group for any questions.</p> <p>Examples include the following:</p> <ol style="list-style-type: none"> <li>Release of Operating Equipment for Mechanical Work.</li> <li>Confined Space Entry</li> <li>Hot Work and General Work Permits</li> <li>Fall Protection &amp; Scaffolding User Safety</li> <li>Prestart-up Safety Review</li> <li>Handover from maintenance / projects to operations</li> <li>Waste disposal</li> <li>Introducing energy source to a confined space (i.e. water testing column)</li> </ol>

No.	Job Steps	Potential Hazard	Critical Actions
5.	Obtain and understand the PPE matrix and how it will be used on the turnaround.	1. Failure to understand the PPE requirements could lead to a safety incident, a failure to identify and stop unsafe working conditions, turnaround delay and a potential injury or fatality if wrong PPE is used.	1a. Obtain, review and understand the PPE matrix and refer to the safety representatives for any questions during the turnaround. 1b. As conditions change during the Turnaround, review the PPE matrix to guide discussions and understand revisions to PPE requirements.
6.	Determine expectations for PED attendance at daily turnaround meetings.	1. Failure to attend the daily turnaround meetings will lead to lack of clear direction, possible communication breakdown, risk of delays and unnecessary re-work.	1. Confirm with the Maintenance Supervisor the daily turnaround meetings that PED should attend. Examples include: <ul style="list-style-type: none"> <li>• Start of shift turnover</li> <li>• Added work meeting</li> <li>• Schedulers meeting</li> </ul>

7.	Obtain copies of all related shutdown equipment drawings and shutdown worklists and review with all Process Engineering coverage for the turnaround.	1. Improper equipment inspection can result in a process upset during start-up and a possible LPO post turnaround.	1. Photocopy /print all related shutdown items PED requires during the turnaround. Examples include: <ul style="list-style-type: none"> <li>• Equipment drawings/vessel internals</li> <li>• P&amp;IDs</li> <li>• Previous vessel inspection reports</li> <li>• Process inspection checklists</li> <li>• Loading diagrams</li> </ul>
8.	Develop the Process Engineering shutdown work schedule, including applicable 24 hour coverage.	1. Not having sufficient Process Engineers to cover the shutdown will lead to a delay in the turnaround schedule. 2. Scheduling too many days coverage per person can lead to fatigue and injury.	1. Work with your Supervisor to develop the Process Engineering shutdown work schedule. 2. Assure each engineer has adequate time off per refinery policy during the event.
9.	Obtain necessary software, drive access, office accommodation and IT hardware if turnaround site is remote to normal offices.	1. Not having access to the Turnaround Added Work database will lead to risk of delays and possibly not giving clear direction for shutdown work items. 2. Not having a designated folder location and read/write access for all participants, can lead to inefficiencies and potential loss of Process Engineering investigation information, resulting in a potential LPO.	1. Ensure all Process Engineers working the shutdown have access to the Turnaround database if used.  2a. Set-up a designated folder location by plant for Process Engineering pictures, investigation results and ensure that all Process Engineers have read / write access to shared shutdown files.  2b. Obtain office & IT hardware as required
10.	Determine expectations for PED turnover.	1. Inadequate turnover leading to confusion on PED recommendations and loss of time. 2. Inconsistent documentation locations.	1. Work with your Supervisor to develop the PED turnover plan for each shift. Think about the following: <ul style="list-style-type: none"> <li>• Written (email OK or more formal document required)</li> <li>• Verbal-face to face requirements</li> <li>• TA Database use</li> </ul> 2. Develop file folder/location for documenting inspection notes, pictures and labeling, lab testing results, etc.
11.	Determine routine shutdown duties for PED.	1. Not understanding PED turnaround duties can result in poor equipment inspections, loss of data and proper documentation, and time delays.	1. Work with your Supervisor and IMPACT team to develop clear expectations of PED role/duties during turnaround execution. Examples include: <ul style="list-style-type: none"> <li>• Vessel inspections</li> <li>• Sign-off on head-up tags</li> </ul>

			<ul style="list-style-type: none"><li>• Capturing as found/dirty equipment just opened with photos and samples</li><li>• Presenting discovery items for approval with economics/plant impact</li><li>• Catalyst handling (if applicable)</li></ul>
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12.	Prepare vessel chemical cleaning procedures with specialist contractors & operations.	1. Delayed vessel entry or higher cost if vessel is not cleaned properly.	1a. Determine where chemical cleaning is required (from previous use / review with peers & SME's) 1b. Process Engineer to work with specialist contractors & operations to develop procedures and temporary pipe modifications.
13	Verify materials ordered by PED have arrived.	1. Delay in the shutdown if materials are not on-site or weren't ordered.	1. Verify PED materials ordered are on site. Examples include the following: <ul style="list-style-type: none"> <li>• Catalyst/support material</li> <li>• Column packing material</li> <li>• Specialty chemicals for sulfiding like DMDS</li> <li>• Specialty draegers if not standard in refinery</li> <li>• Chemicals for start-up like DEA/MEA/etc.</li> </ul>
14.	Review documentation from previous turnarounds if not done during planning phase of the event. (especially for unplanned events)	1. Unexpected equipment damage or discovery work or lessons learned not reviewed may lead to LPO.	1. Locate the past Turnaround report and review.